

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-266264

(43)Date of publication of application : 26.09.2000

(51)Int.Cl.

F16L 37/42

F16K 17/36

F16L 37/23

(21)Application number : 11-066619

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(22)Date of filing : 12.03.1999

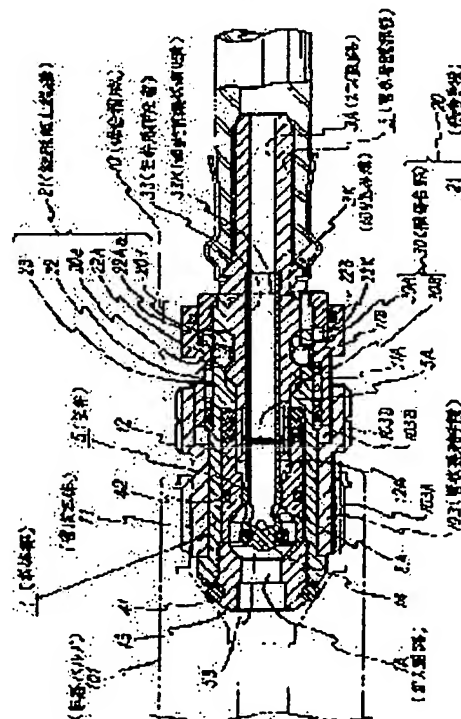
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## (54) GAS DISCHARGE PREVENTING DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a gas discharge preventing device capable of effectively interrupting a blowout of gas by immediate operation, in the case where the device itself is partly damaged caused by an earthquake or the like.

**SOLUTION:** This device has a pipe-shaped mounting/demounting member 3 provided with a main body part 1 mounting one end in a vessel valve and an engaged part engaging with an internal diametric part in the other end of this main body part 1, main valve 5 mounted in the main body part 1 to interrupt a moving release of gas from the gas vessel in the case of detaching the pipe-shaped mounting/demounting member 3, and an engaging means 20 removably engaging the main body part 1 and the pipe-shaped mounting/demounting member 3. A cut-in groove 3K is provided in a part easily concentrating internal stress in the case of applying external force in a prescribed part of the pipe-shaped mounting/demounting member 3. A pressing pipe 33 for the main valve operated in the case of breaking of the pipe-shaped mounting/demounting member 3 in a part of the cut-in groove 3K to release pressing action relating to the main valve 5 is mounted in the pipe-shaped mounting/demounting member 3.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

\* NOTICES \*

2. . . . . shows the word which can not be translated.  
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## CLAIMS

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### [Claim(s)]

[Claim 1] The body section which has the tubular body which equipped the other end with the engagement field to other connection members while the container bulb with which gas containers, such as a chemical cylinder, were equipped is equipped with the end section free [ attachment and detachment ] and having a gas passageway in a part for a core, The tubular removable member which equipped the periphery section with the engaged portion which engages with the other end of said body section while the end was inserted in the bore part of the other end which is the gas sending area of this body section and having the gas passageway in the center of the bore section, The main valve equipped with the gas cutoff function which intercepts the firedamp-migration emission which operates when said body circles are equipped and said tubular removable member breaks away, is sent into the end section of the body circles concerned from gas containers, such as said chemical cylinder, and goes to an other end side, In the gas-evolution arrester which has an engagement means by which the other end and said tubular removable member of said body section are engaged enabling free attachment and detachment When external force is impressed to the part exposed from said body section of the tubular removable member concerned, function on the predetermined part of said tubular removable member, cut in it deeply so that the internal stress which originates in the external force concerned and is produced may concentrate, and a slot is established in it. The gas-evolution arrester characterized by carrying out receipt equipment of the press tubing for main valves of which said tubular removable member cuts deeply, and it operates when it is fractured and divided into two by part for a slot, and the press actuation to said main valve is canceled while pressing and preventing the gas cutoff actuation by said main valve in the end section in said tubular removable member.

[Claim 2] The gas-evolution arrester according to claim 1 characterized by constituting according to the balking inhibition device which prevents balking of the tubular removable member concerned while permitting engagement of said tubular removable member for said engagement means, and the engagement discharge device in which it is annexed to this balking inhibition device, and balking blocking of the balking inhibition device concerned is canceled.

[Claim 3] Two or more through tubes which go to the core which separated predetermined spacing in the other end periphery enclosure of the tubular body with which said body section is equipped with said balking inhibition device, and was established in it alternately [ divide into two trains annularly and ], The ball for a stop which was contained in each of this through tube and formed in the magnitude which can project in a core [ of the body section concerned ], or periphery section side, The tubular slide member which equipped the bore side with the annular lobe which prevents that the ball for a stop located in one [ at least ] side of the balls for a stop of these two trains projects outside, The annular inclined plane which permits that the ball for a stop which is prepared in the other end bore side of this tubular slide member, and is located in said another side side projects outside, The migration control unit in which it considered as the configuration equipped with the spring for a former location return and stopper member which pinpoint the halt location of said tubular slide member, and said engagement discharge device was prepared by the other end periphery of said tubular slide member, The gas-evolution arrester according to claim 2 characterized by considering as the configuration equipped with the guide section which permits migration of the tubular slide member concerned when said tubular slide member resists the spring force of the spring for said former location return and is transported to one side.

[Claim 4] The gas-evolution arrester according to claim 3 characterized by considering as the configuration equipped with the annular crevice which permits that said ball for a stop projects the engaged portion of said tubular removable member in the bore side of the tubular body concerned if it is in an engagement condition with said tubular body, and the annular heights of the cross-section trapezoidal shape which energizes that said ball for a stop projects in the outer-diameter side of said tubular body.

[Claim 5] Said press tubing for main valves is the gas-evolution arrester according to claim 1, 2, 3, or 4 characterized by equipping the field corresponding to the slitting slot of said tubular removable member with the annular end slot for cutting.

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a gas-evolution arrester, and bulb outlets, such as a chemical cylinder of LP gas, etc. are especially equipped with it, or it relates to the gas-evolution arrester used equipping joining segments, such as piping for gas which can be crooked freely.

[0002]

[Description of the Prior Art] A gas-evolution arrester is used conventionally, being attached in the container bulb of the chemical cylinder (gas container) which compressed and contained LP gas etc., to a gas distribution plant, breakage accident tends to intercept the gas passageway to a generating case, and tends to prevent the gas evolution from a chemical cylinder (gas container), and tends to prevent generating of disaster by this to it with various impacts including the fall of the gas container by the massive earthquake, or a heavy snowfall and a typhoon.

[0003] With the negative pressure produced by the unusual outflow of the gas accompanying the breakage accident of a gas distribution plant, the main valve with which the interior of a gas-evolution arrester was equipped is operated, seal members, such as an O ring, are stuck to the wall of a gas passageway, a gas passageway is intercepted, and what prevents the unusual outflow of gas by this is conventionally known so that Japanese Patent Application No. No. 54050 [ one to ] may see as this kind of a gas-evolution prevention machine.

[0004]

[Problem(s) to be Solved by the Invention] However, when the gas-evolution arrester itself is destroyed by the earthquake etc., generally it does not have a means to prevent emission of the gas from a gas container.

[0005]

[Objects of the Invention] This invention sets it as the purpose to offer the gas-evolution arrester which improves un-arranging [ which this conventional example has ], operates immediately even if it is the case where originated in the earthquake etc. especially and a part of equipment itself is destroyed, and can intercept effectively the outflow of the gas from a chemical cylinder (gas container).

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, in invention according to claim 1 The body section which has the tubular body which equipped the other end with the engagement field to other connection members while the container bulb with which gas containers, such as a chemical cylinder, were equipped is equipped with the end section free [ attachment and detachment ] and having a gas passageway in a part for a core, The tubular removable member which equipped the periphery section with the engaged portion which engages with the other end of said body section while the end was inserted in the bore part of the other end which is the gas sending area of this body section and having the gas passageway in the center of the bore section, The main valve equipped with the gas cutoff function which intercepts the firedamp-migration emission which operates when said body circles are equipped and said tubular removable member breaks away, is sent into the end section of the body circles concerned from gas containers, such as said chemical cylinder, and goes to an other end side, It has an engagement means by which the other end and said tubular removable member of said body section are engaged enabling free attachment and detachment. It functions, when external force is impressed to the part exposed to the predetermined part of a tubular removable member from the body section which the tubular removable member concerned mentioned above, it cuts deeply so that the internal stress which originates in the external force concerned and is produced may concentrate, and a slot is prepared.

[0007] And while pressing and preventing the gas cutoff actuation by the main valve in the end section in the tubular removable member mentioned above, the tubular removable member cut deeply and the configuration of carrying out receipt equipment of the press tubing for main valves of which the press actuation to the

[0008] For this reason, by this invention according to claim 1, when it originates in an earthquake etc. and predetermined impulse force joins the high-pressure-hose connection section of a tubular removable member from the outside first, the tubular removable member concerned is cut by part for a slitting slot. This establishes the weak part especially in impulse force, such as an earthquake, beforehand, and is based on the safety theory which is going to maintain gas cutoff actuation of equipment original by breakage of the part concerned.

[0009] And if a tubular removable member cuts deeply and it is cut by part for a slot, press tubing for main valves immediately mentioned above will operate, and the press actuation to the main valve mentioned above will be canceled. By this, as shown in drawing 1, the right-hand side of the body section is opened wide, and it will be in the condition of being easy to inject gas outside by this. If this condition arises, the main valve for gas cutoff with which was energized from a chemical cylinder (gas container) to gas pressure, and body circles were equipped will operate immediately, will coordinate with the body section concerned inside the body section concerned, and will intercept emission of gas. Thereby, emission of the gas from the chemical cylinder in the part concerned is prevented.

[0010] That is, even if it will be in the condition that the tubular removable member was damaged and the high pressure hose seceded from the tubular removable member concerned, emission of gas can be prevented certainly.

[0011] By invention according to claim 2, the configuration of constituting in the gas-evolution arrester according to claim 1 mentioned above by the balking inhibition device which prevents balking of the tubular removable member concerned, and the engagement discharge device in which it is annexed to this balking inhibition device, and balking blocking of the balking inhibition device concerned is canceled while permitting the engagement of a tubular removable member which mentioned above the engagement means mentioned above is taken.

[0012] for this reason, in this invention according to claim 2, have a function equivalent to invention according to claim 1 mentioned above, and also further, when a tubular removable member is connected with the body section It becomes possible, even if it is, when an earthquake etc. destroys a gas container to maintain the connection condition of the body section and a tubular removable member concerned. To coincidence, an engagement discharge device is operated very easily by external actuation by an operator etc., and while being able to make a tubular removable member estrange and being able to aim at improvement in dependability in this point from the body section, it is the thing equipped with the advantage that raising maintainability cuts.

[0013] In the gas-evolution arrester according to claim 2 mentioned above in invention according to claim 3 Two or more through tubes which go to the core which separated predetermined spacing in the other end periphery enclosure of the tubular body with which the body section is equipped with the balking inhibition device, and was established in it alternately [ divide into two trains annularly and ], The ball for a stop which was contained in each of this through tube and formed in the magnitude which can project in a core [ of the body section concerned ], or periphery section side, The tubular slide member which equipped the bore side with the annular lobe which prevents that the ball for a stop located in one [ at least ] side of the balls for a stop of these two trains projects outside, It considers as the configuration equipped with the annular inclined plane which permits that the ball for a stop which is prepared in the other end bore side of this tubular slide member, and is located in said another side side projects outside, and the spring for a former location return and stopper member which pinpoint the halt location of said tubular slide member.

[0014] Furthermore, how to consider as the configuration equipped with the migration control unit in which the engagement discharge device mentioned above was prepared by the other end periphery of a tubular slide member, and the guide section which permits migration of the tubular slide member concerned when a tubular slide member resists the spring force of a spring member and is transported to one side is taken.

[0015] For this reason, in this invention according to claim 3, function on invention and the EQC according to claim 2 which were mentioned above, and also Furthermore, since engagement actuation with the body section and a tubular removable member could be ensured [ smoothly and ] easily, the ball for a stop was divided into two trains and it moreover equipped alternately Each ball for a stop can be made to operate sequentially for every train, and it becomes possible to give a balking inhibition moving function to a balking inhibition device about the ball for a stop of the train located in one side by this. The slide distance of a tubular slide member can be set up comparatively greatly. At this point, for example, if it is under the condition with which the body section and a tubular removable member engaged, the protrusion by the side of the periphery of a tubular slide member is completely controlled for the ball for a stop of one train by the annular lobe, and stability can be secured to actuation of a balking inhibition device by this, It becomes possible to raise the stability and certainty of actuation of the whole equipment.

trapezoidal shape which energizes that the ball for a stop projects in the outer-diameter side of a tubular body in the gas-evolution arrester according to claim 3 mentioned above in invention according to claim 4 if it is in an engagement condition with the tubular body which mentioned above the engaged portion of a tubular removable member is taken.

[0017] For this reason, in this invention according to claim 4, it functions on a par with invention according to claim 3 mentioned above, and also and it energizes smoothly passing the inner circumference side of a tubular body further in the location where the ball for a stop was specified if needed, or moving to a periphery side, a location can be maintained after migration and there is an advantage that smooth actuation of actuation of the whole equipment can be secured in this point.

[0018] In invention according to claim 5, press tubing for main valves mentioned above has taken the configuration of equipping with the annular end slot for cutting the field corresponding to the slitting slot of the tubular removable member mentioned above, in the gas-evolution arrester according to claim 1, 2, 3, or 4 mentioned above.

[0019] For this reason, in this invention according to claim 5, function on each invention and the EQC according to claim 1, 2, 3, or 4 which were mentioned above, and also Furthermore, said tubular removable member cuts deeply, when it is fractured and divided into two by part for a slot, become possible to fracture by part for the annular end slot for cutting to coincidence, and it sets at this point. Press tubing for main valves can cancel certainly the press actuation (namely, gas-evolution actuation by the main valve) to a main valve, and when a tubular removable member cuts deeply and it fractures by part for a slot by this, there is an advantage that gas-evolution prevention actuation by the main valve can be performed quickly and certainly.

[0020]

[Embodiment of the Invention] Hereafter, 1 operation gestalt of this invention is explained based on drawing 1 thru/or drawing 7. The sectional view of the gas-evolution arrester in this operation gestalt is shown in drawing 1. In this drawing 1, after a gas-evolution arrester is sent into the body section 1, the tubular removable member (plug) 3 which engages with this body section 1, and the end section in the body section 1, it is equipped with the main valve 5 equipped with the gas cutoff function which intercepts the firedamp-migration emission which goes to an other end side.

[0021] The body section 1 is equipped with the engagement means 20 against the tubular removable member 3 mentioned above in the other end (right end section of drawing 1) while the container bulb 101 with which gas containers, such as a chemical cylinder, were equipped is equipped with the end section (left end section of drawing 1) free [attachment and detachment] and it has gas-passageway 1A in a part for a core.

[0022] Here, the body section 1 is equipped with the tubular connection means 103 for connecting with the container bulb 101 of the gas container which mentioned the body section 1 concerned above in the periphery section free [attachment and detachment]. Turning-effort energization field 103D of the shape of a hexagon for this tubular connection means 103 being equipped with thread-part 103A for connecting with the connection member by the side of the gas container mentioned above on the left end section periphery (not shown) as shown in drawing 1, and making a right end section periphery rotate the tubular connection means 103 concerned is prepared.

[0023] The guide member 12 for main valves of the shape of tubing which regulates actuation of the main valve 5 concerned while the body section 1 holds the tubular body 11 which makes the important section of the body section 1 concerned, and the main valve 5 which the medial-axis part of this tubular body 11 was equipped, and was mentioned above, It has the engagement contact member 13 which engages with the container bulb 101 grade mentioned above while fixing in the tubular body 11 which mentioned above this guide member 12 for main valves free [attachment and detachment].

[0024] A productivity drive can be planned by trichotomizing this body section 1, such as being able to give various functions to the body section 1 concerned so that it may mention later, and making an assembly easy.

[0025] The tubular body 11 which makes the important section of the body section 1 has equipped the right end section of drawing 1 with two or more balls 20e and 20f (it mentions later for details) for a stop which make a part of engagement means 20 while carrying out engagement maintenance of the engagement contact member 13 mentioned above through the thread part formed in the bore part of the left end section (end section) of drawing 1.

[0026] Moreover, the end was inserted in the bore part of the right end section (other end) of drawing 1 which is the gas sending area of the body section 1 which had and mentioned gas-passageway 3A above in the core, and the tubular removable member 3 was connected with the body section 1 concerned, and equips the periphery section with the engaged portion 30 to the engagement means 20 of the body section 1



body section 1 and mentioned above breaks away, and it is sent into the end circles of the body section 1 concerned from gas containers, such as a chemical cylinder, it is equipped with the gas cutoff function which intercepts the firedamp-migration emission which goes to an other end side.

[0028] Moreover, the guide member 12 for main valves is in the condition \*\*\*\*(ed) by annular lobe 11A which protruded on the bore side of the tubular body 11 which it was formed in the shape of a cylinder, and was mentioned above, and the engagement contact member 13 mentioned above, and the interior of the tubular body 11 is equipped with it free [ attachment and detachment ]. This guide member 12 for main valves equips that bore side with main valve attaching part 12A. This main valve attaching part 12A is formed in the bore side center section of the guide member 12 for main valves with the gestalt projected annularly by predetermined width of face, and it is formed so that the main valve 5 concerned may be held, while permitting that the main valve 5 for gas cutoff moves to the longitudinal direction of drawing 1 .

[0029] The main valve 5 mentioned above is formed in opening 5A in the shape of [ which equipped the left end section with thick pars-basilaris-ossis-occipitalis 5B in preparation for the right end section of drawing 1 ] a closed-end cylinder. Moreover, this main valve 5 equips the perimeter of pars-basilaris-ossis-occipitalis 5B with O ring 14 for gas seal, approaches this O ring 14, and two vent hole 5a for gas is prepared in that cylindrical side-attachment-wall part.

[0030] Furthermore, this main valve 5 is held by main valve attaching part 12A of the guide member 12 for main valves mentioned above free [ the both-way migration to the longitudinal direction of drawing 1 ], as mentioned above. In this case, a main valve 5 is set as the location (condition extruded by the left lateral among drawing) which it is pushed on the tubular removable member 3 (press tubing 33 for main valves equipped in the tubular removable member 3 in detail), and is shown in drawing 1 , as usually shown in drawing 1 , and the gas passageways 1A and 3A mentioned above by this are opened for free passage.

[0031] And when this main valve 5 moves rightward [ of drawing 1 ], full seal is carried out with O ring 14 which the left end section in drawing 1 of the main valve attaching part 12A concerned mentioned above at the same time vent hole 5a for two gas of the main valve 5 concerned will be in the condition of having entered into the bore side of main valve attaching part 12A and is sealed by the internal surface of the main valve attaching part 12A concerned.

[0032] There is this condition, when the tubular removable member 3 is pulled apart from the body section 1, and it is pressed from the left side of drawing 1 to gas pressure, and generates, and jet of the gas to the exterior is intercepted by this.

[0033] On the other hand, the engagement means 20 is constituted by the balking inhibition device 21 which prevents balking of the tubular removable member 3 concerned, and the engagement discharge device 25 in which it is annexed to this balking inhibition device 21, and balking blocking of the balking inhibition device 21 concerned is canceled while it permits engagement of the tubular removable member 3 mentioned above, as shown in drawing 1 and drawing 3 .

[0034] If this is explained further in full detail, the balking inhibition device 21 of the engagement means 20 mentioned above Two or more through tube 11B which is prepared in the other end periphery enclosure of the tubular body 11 with which the body section 1 is equipped as shown in drawing 1 , and goes to the core of the tubular body 11 concerned, The balls 20e and 20f for a stop of the same magnitude which was contained in each of this through tube 11B, and was formed in the magnitude which can project in a core [ of the tubular body 11 concerned ], or periphery section side, It has the tubular slide member 22 which equipped the bore side with annular lobe 22A which prevents that the balls 20e and 20f for a stop of these two trains project outside, or is permitted.

[0035] Furthermore, this balking inhibition device 21 has composition equipped with annular inclined plane 22Aa which carries out sequential permission of being prepared in the other end (right end section of drawing 1 ) of annular lobe 22A with which the tubular slide member 22 mentioned above is equipped, and the balls 20f and 20e for a stop projecting outside, and the spring 23 for a former location return and the stopper member 24 which pinpoint the halt location of the tubular slide member 22.

[0036] Here, space field 22K of predetermined magnitude are prepared in the bore side of the other end (right end section of drawing 1 ) of the tubular slide member 22. These space field 22K make a recess field (recess space) when the balls 20f and 20e for a stop mentioned above are extruded by the tubular removable member 3.

[0037] Moreover, the compression spring which always presses the tubular slide member 22 mentioned above rightward [ of drawing 1 ] as a spring 23 for a former location return is used. As for this spring 23 for a former location return, that initial pressure is set as 6-10 [Kg/cm<sup>2</sup>]. Moreover, the thrust of the spring 23 for a former location return mentioned above in the edge side of the other end of the tubular body 11 mentioned above was resisted. screwing equipment was carried out and the stopper member 24 is equipped with the

[0038] An example of the tubular body 11 is shown in drawing 2. AS SHOWN IN THIS drawing 2, with this operation gestalt, two or more through tube 11B mentioned above separates predetermined spacing, and it can distribute to two annular trains, and it is alternately prepared in the right end section (other end) periphery of the tubular body 11. Moreover, this drawing 2 shows the condition that the balls 20e and 20f for a stop mentioned above in through tube 11B were contained.

[0039] annular train L1 located in the end section side (left end section side of drawing 2) of the tubular body 11 among this through tube 11B that divided into two trains annularly, was prepared and was formed \*\*\*\* -- four through tube 11B which goes to the core of the tubular body 11 is formed at equal intervals, and as mentioned above in each of that through tube 11B, ball 20e for a stop is contained. moreover, annular train L2 located in the other end side (right end section side of drawing 2) of the tubular body 11 \*\*\*\* -- four through tube 11B which similarly goes to the core of the tubular body 11 is formed at equal intervals, and as mentioned above in each of that through tube 11B, ball 20f for a stop is contained.

[0040] In this case, the annular train L1 and L2 Each through tube 11B is formed, after it saw from the medial axis of the tubular body 11 concerned and 45 degrees has shifted, respectively. For this reason, on the whole, each through tube 11B will be alternately prepared along the perimeter of the tubular body 11, and receipt equipment will be carried out each ball 20for stop e, and into through tube 11B prepared alternately 20f.

[0041] each of these balls 20e and 20f for a stop -- that part -- the inside -- or it can project outside, respectively. Specifically, the thick dimension of the tubular body 11 in the part in which through tube 11B was formed is set to about about 2 of the diameter which are the balls 20e and 20f for a stop / 3. Sign 11Ba shows the projection for balking prevention each balls 20e and 20f for a stop of whose prevent breaking away to the core side of the tubular body 11 mentioned above from through tube 11B (refer to drawing 2 (B) and (C)).

[0042] For this reason, if the tubular removable member 3 is inserted in the tubular body 11 so that it may mention later, each balls 20f and 20e for a stop will be extruded one by one by the tubular removable member 3 concerned at the periphery of the tubular body 11 so that it may mention later. With these extruded balls 20f and 20e for a stop, the tubular slide member 22 mentioned above is energized by that annular inclined plane 22Aa by coincidence, and moves leftward [ of drawing 1 ] at it (coordinated actuation of the engagement discharge device 25 mentioned later). Thereby, the tubular removable member 3 is easily inserted to the engagement location within the tubular body 11.

[0043] The engagement discharge device 25 of the engagement means 20 mentioned above here Migration control unit 22B projected and prepared in the periphery part of the other end ( drawing 1 , right end section of drawing 3 ) of the tubular slide member 22 as shown in drawing 3 , It is constituted by guide section 103B to which it shows migration of the tubular slide member concerned, when the spring force of the spring 23 for a former location return which the tubular slide member 22 mentioned above is resisted and it is transported to one side (left of drawing 3 ). Guide section 103B is formed in the bore side of the other end (right end section) in drawing 1 of the tubular connection means 103 mentioned above among this.

[0044] The end section is inserted in the bore part (gas sending area) of the other end of the body section 1 mentioned above as the tubular removable member 3 was shown in drawing 4 , and connection equipment of the high pressure hose 51 for sendouts is carried out at the other end. Moreover, this tubular removable member 3 equips the periphery section with the engaged portion 30 which engages with the other end of the body section 1 while having gas-passageway 3A in that center of the bore section.

[0045] The engaged portion 30 formed in the periphery section of this tubular removable member 3 If it is in an engagement condition with the tubular body 11 mentioned above Annular crevice 30A which permits that the balls 20e and 20f for a stop project in the bore side of the tubular body 11 concerned, It has annular heights 30B of the cross-section trapezoidal shape which energizes that the balls 20e and 20f for a stop which it connected [ section / in drawing 4 of this annular crevice 30A / left end ], and was prepared, and were mentioned above project in the outer-diameter side of the tubular body 11.

[0046] Here, the width of face of annular crevice 30A is formed in the magnitude which the balls 20e and 20f for a stop can project to coincidence. moreover, the shape of a skirt board of annular heights 30B which was connected and was prepared in this annular crevice 30A is tubular on those both sides -- it has inclined plane 30Ba and 30Bb.

[0047] the inside of this and one side are tubular -- inclined plane 30Ba is prepared in the left end section in drawing 1 of annular heights 30B, and functions as extruding outside the balls 20f and 20e for a stop mentioned above at the time of the insertion connection of the tubular removable member 3 to the body section 1 one by one. moreover, another side is tubular -- it functions as inclined plane 30Bb extruding outside the balls 20e and 20f for a stop mentioned above when it was prepared in the right end section in drawing 1 of annular heights 30B. the engagement discharge device 25 mentioned above was operated and

tubular removable member 3 is equipped with the press tubing 33 for main valves.

[0049] This press tubing 33 for main valves is equipped with the press actuation discharge function for main valves to operate when the tubular removable member 3 mentioned above while pressing and preventing the gas cutoff actuation by the main valve 3 mentioned above in the end section fractures and is bisected in slitting slot 3K predetermined part, and to cancel the press actuation to a main valve 3.

[0050] This is explained further in full detail. As shown in drawing 1, this press tubing 33 for main valves is formed in the shape of [ which has annular flange 33A in that left end section ] tubing, and when the tubular removable member 3 mentioned above is inserted into the body section 1, it can extrude the main valve 5 mentioned above in this flange 33A. moreover, the object for flanges which permits and regulates the migration of flange 33A mentioned above in the left end section of drawing 1 in gas-passageway 3A in the tubular removable member 3 -- annular -- guide section 3Aa is prepared.

[0051] the left end section [ in / specifically / drawing 1 of this gas-passageway 3A ] -- the space field of predetermined die-length L -- preparing -- the diameter of this space field L -- the diameter of other fields -- how many minutes -- large -- setting up -- this -- the object for flanges -- annular -- it was referred to as guide section 3Aa. The right end section in drawing 1 of the press tubing 33 for main valves mentioned above is installed rightward [ of drawing 1 ] across the location of slitting slot 3K of the tubular removable member 3 mentioned later.

[0052] Moreover, it functions, when external force is impressed to the part exposed from the body section 1 which the tubular removable member concerned mentioned above in the center section in drawing 4 corresponding to the edge part of the right end section of the body section 1, and slitting slot 3K which the internal stress which originates in the external force concerned and is produced concentrates are prepared in the tubular removable member 3. and the periphery part of the installation section of the press tubing 33 for main valves mentioned above corresponding to these slitting slot 3K -- the object for cutting -- annular -- end slot 33K are prepared. For this reason, when the tubular removable member 3 concerned is cut by external force in slitting slot 3K part of the tubular removable member 3, the press tubing 33 for main valves mentioned above in slitting slot 3K part in coincidence is cut.

[0053] In this case, the dimension L of the space field in gas-passageway 3A mentioned above When the press tubing 33 for main valves cuts deeply to coincidence in annular end slot 3K part for cutting again and the tubular removable member 3 is cut in slot 3K part The press tubing 33 for main valves concerned which remained with the gas pressure currently sent in from the gas container 100 side is a main valve 5L1. Only distance moves and it is set up as a distance required to perform gas cutoff actuation.

[0054] Furthermore, as shown in drawing 1, the seal member for holding confidentiality is equipped between [ each ] configuration members. That is, the O ring for the left end section in drawing 1 of the periphery section of the body section 1 being equipped with a sign 41, and holding the confidentiality the engagement contact member 13 and by the side of a gas container is shown, and a sign 42 shows the O ring as a seal member equipped between the tubular body 11 of the body section 1, and the guide member 12 for main valves.

[0055] Moreover, Signs 43A and 43B show the O ring as a seal member equipped between the tubular body 11 and the tubular removable member 3. In this case, since the tubular removable member 3 may be estranged from the tubular body 11, the seal of it is carried out to the duplex. Sign 43C shows the annular ring infixed between O rings 43A and 43B, in order to raise the seal effectiveness.

[0056] Furthermore, a sign 44 shows the O ring as a seal member equipped between the tubular body 11 and the tubular slide member 22. A sign 45 shows the stopper member which prevents that the tubular connection means 103 which it was annexed to the left-hand side in drawing 1 of O ring 44, and was mentioned above shifts to the right-hand side of drawing 1 beyond the need. A sign 46 shows the spring stop ring which is put side by side on the right-hand side in drawing 1 of O ring 44, and stops the end section of the spring 23 for a former location return. Furthermore, a sign 47 shows the O ring as a seal member equipped between the right end section in drawing 1 of the tubular slide member 22, and the stopper member 24 mentioned above.

[0057] Next, actuation of the above-mentioned operation gestalt is explained.

[0058] Attachment-and-detachment actuation with the tubular removable member 3 and the body section 1 in the above-mentioned operation gestalt is explained to the beginning based on drawing 5 thru/or drawing 6. Drawing 5 (A), (B), and (C) show the condition in the case of connecting with the body section 1 the tubular removable member 3 to which the high pressure hose 51 was given. This drawing 5 (A) - (C) shows a fragmentary sectional view on account of a form.

[0059] First, drawing 5 (A) shows the condition immediately after inserting the point of the tubular removable member 3 in the body section 1 along with an arrow head A. By this drawing 5 (A), while one near inclined



formed in annular lobe 22A of the tubular slide member 22 ball 20f for a stop -- annular -- the tubular slide member 22 concerned (and the spring 23 for a former location return -- resisting) is extruded to the left (the direction of an arrow head a) of drawing 5 through inclined plane 22Aa.

[0060] Next, drawing 5 (B) shows the case where the tubular removable member 3 is further moved in the direction of an arrow head A. In this drawing 5 (B), the following ball 20e for a stop is extruded outside by one near inclined plane 30a following ball 20f for a stop. And by this drawing 5 (b), the balls 20f and 20e for a stop show the condition that annular projected part 30B of the tubular removable member 3 extruded [ in coincidence ] outside at coincidence. in this case, ball 20e for a stop was formed in annular lobe 22A of the tubular slide member 22 -- annular -- the tubular slide member 22 concerned (and the spring 23 for a former location return -- resisting) is further extruded to the left of drawing 5 through inclined plane 22Aa.

[0061] Drawing 5 (C) shows the case where the tubular removable member 3 is further moved in the direction of an arrow head A. In this case, the balls 20f and 20e for a stop are guided at annular inclined plane 30Bb of another side formed in annular projected part 30B of tubular removable member 3 \*\*, and are pushed in in annular crevice 30A of the tubular removable member 3 concerned. This actuation is produced immediately after the balls 20f and 20e for a stop were extruded outside by one near inclined plane 30Ba in drawing 5 (B) mentioned above.

[0062] That is, if the balls 20f and 20e for a stop are extruded outside by one near inclined plane 30a, the thrust of the tubular removable member 3 to the tubular slide member 22 will be lost. For this reason, the tubular slide member 22 is pushed back rightward [ of drawing 5 ] (the direction of B) by the spring force of the spring 23 for a former location return in an instant. By migration in the direction of B of this tubular slide member 22, the balls 20e and 20f for a stop shift to the condition (condition pushed in annular crevice 30A of the tubular removable member 3) of drawing 5 (C) in an instant. The condition of this drawing 5 (C) shows the condition that the engaged portion 30 which the tubular removable member 3 mentioned above engaged with the engagement means 21 of the body section 1. This is the same as that of the condition of drawing 1 mentioned above.

[0063] And if it is in the engagement condition of this drawing 5 (C) If it is going to draw out in the direction contrary to the direction of A which mentioned the tubular removable member 3 above By near inclined plane 30Bb of another side of an engaged portion 30, ball 20e for a stop which should be extruded outside runs against the wall surface by the side of the bore of annular lobe 22A formed in the bore side of the tubular slide member 22, and cannot move at all (the balking inhibition function of the balking inhibition device 21 acting). For this reason, the tubular removable member 3 will be in the condition of having connected with the body section 1 mentioned above in one.

[0064] next, alienation of the tubular removable member 3 connected with the body section 1 by drawing 5 (C) mentioned above -- actuation is explained based on drawing 6 .

[0065] In this case, it becomes possible by operating the engagement discharge device 25 of the engagement means 21 shown in drawing 3 . If this is explained further in full detail, as shown in drawing 6 , according to external force (operating physical force by an operator etc.), the spring force of the spring 23 for a former location return will be resisted, and the tubular slide member 22 will be pressed in the direction of a of drawing 6 . Drawing 6 shows the condition immediately after making the tubular slide member 22 slide in the direction of a of drawing 6 .

[0066] In this case, annular lobe 22A of the tubular slide member 22 mentioned above is lost in the balls [ which were mentioned above / for a stop / 20e and 20f ] perimeter of an outside, and space field 22K formed in the bore side of the tubular slide member 22 concerned exist in it. For this reason, the balls 20e and 20f for a stop will be in the condition that it may shift outside easily. if the tubular removable member 3 mentioned above is pulled out rightward [ of drawing 6 ] (the direction of arrow-head b) after being in this condition -- the tubular removable member 3 concerned -- \*\*\*\* from the body section 1 -- it can estrange easily. And if it breaks away, within the body section 1, by the high pressure gas from the container bulb 101 side, a main valve 5 will move to the method of the right of drawing, will be in the condition which is this tubular removable member 3 and which shows in drawing 3 , and jet of gas will be intercepted.

[0067] Furthermore, it is in the above-mentioned operation gestalt, and as shown in drawing 1 , the jet preventive measures of gas when some equipments are damaged and gas blows off are explained based on drawing 7 . first, it is shown in drawing 7 -- as -- tubular removable member 3 part -- an earthquake etc. -- a falling object with large weight -- the case where M falls is assumed.

[0068] In this case, with the above-mentioned operation gestalt, the part (slitting slot 3K) which is easy to damage in the predetermined part of the tubular removable member 3 as mentioned above is established beforehand. For this reason, when the shearing force more than predetermined is impressed to the tubular removable member 3 by the case where the falling object M mentioned above hits directly etc. the tubular

as mentioned above.

[0069] Drawing 7 (A) shows a case immediately after having operated in this case and separating tubular removable member 3 part from the body section 1 with some internal press tubing 33 for main valves. In this case, since high pressure gas is sent out from the container bulb 101 by the side of a gas container, in the condition of drawing 7 (A), high pressure gas usually spouts toward the method of the right by the medial-axis part in the body section 1 from the left of drawing. It is energized by this high pressure gas to spout, and the main valve 5 in the body section 1 is pressed by the method of drawing Nakamigi at coincidence. In this case, the press tubing 33 for main valves mentioned above -- that right end section -- the object for cutting -- it is in the condition that the annular press actuation discharge function for main valves which it was cut by end slot 33K, and the right end side was wide opened, and was mentioned above was exercised.

[0070] For this reason, the press tubing 33 for main valves mentioned above with the shift to the method of the right of a main valve 5 also shifts to the method of the right at coincidence. Drawing 7 (B) shows a condition immediately after a main valve 5 shifts to the method of the right with the press tubing 33 for main valves. Even when it becomes completely the same [ gas-passageway 1A of the medial-axis part in the body section 1 ] as that of the condition of having removed tubular removable member 3 part shown in drawing 2 mentioned above (although a part of tubular removable member 3 remained inside) and this breakage accident arises by the main valve 5 in the state of this drawing 7 (B), jet of gas can be prevented completely.

[0071] And if the residual part of the tubular removable member 3 is removed, the continuation use as it is of the body section 1 will be attained from the inside of the body section 1 which the engagement discharge device 25 of the engagement means 21 was operated, and mentioned it above like the case of drawing 6 mentioned above (that is, move the tubular slide member 22 to the left of drawing 6 ). Before and after removal of the residual part of this tubular removable member 3, in any case, the main valve 5 is functioning and jet of gas is not.

[0072] In addition, although the example of the above-mentioned operation gestalt was carried out about the case where this invention is directly connected with the container bulb 101 with which gas containers, such as a liquefied petroleum gas, were equipped, it may carry out this invention to the coupling device which is not necessarily limited to this in this invention, for example, connects a high-pressure-hose comrade free [ attachment and detachment ].

[0073] Moreover, while it is possible to carry out breakaway actuation of the tubular removable member (plug) 3 to which the high pressure hose 51 was given easily manually from the body section 1 by the side of a gas container if it is in this operation gestalt as mentioned above, a main valve 5 surely operates to a breakaway and coincidence of the tubular removable member (plug) 3 concerned, and the flow of the gas in gas passageway 1A is intercepted. For this reason, even if it faces in emergency when gas containers, such as a liquefied petroleum gas, collapse according to an earthquake etc., it can be made to free from the tubular removable member (plug) 3 easily from a gas container immediately, and even if it is the case where a gas container therefore collapses [ earthquake ] in a starting point, it is possible to control generating of a secondary disaster effectively.

[0074]

[Effect of the Invention] Since this invention is constituted as mentioned above and functions, even if it is the case where originated in the earthquake etc. and a part of equipment itself is destroyed according to this, in this invention It can respond as destruction. the part by cutting of a tubular removable member -- moreover It not only equips the body section with this tubular removable member free [ attachment and detachment ], but it can prevent jet of gas completely to destruction and coincidence in part. And the reuse of the equipment concerned can be quickly carried out only by exchanging a tubular removable member, changing of a tubular removable member is also simplified very much, and the outstanding gas-evolution arrester which is not in the former that it is strong to an earthquake etc. and a reuse is possible, in this point can be offered.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the sectional view showing 1 operation gestalt of this invention.

[Drawing 2] It is drawing showing the tubular body with which the body section indicated in drawing 1 is equipped, and the front view which carried out the tubular body part cross section of drawing 2 (A), the sectional view where drawing 2 (B) met the B-B line of drawing 2 (A), and drawing 2 (C) are the sectional views which met the C-C line of drawing 2 (A).

[Drawing 3] It is drawing showing the body section in drawing 1 , and the sectional view which omitted drawing 3 (A) in part, and drawing 3 (B) are the sectional views which met the B-B line of drawing 3 (A).

[Drawing 4] It is the sectional view showing the tubular removable member in drawing 1 .

[Drawing 5] It is the explanatory view showing the actuation at the time of connection to the body section of equipment and the tubular removable member which were indicated to drawing 1 omitted in part, and drawing in which drawing 5 (A) shows immediately after insertion of a tubular removable member, drawing showing a condition just before drawing 5 (B) is after insertion of a tubular removable member and pushing back an internal main valve, and drawing 5 (C) are drawings showing the completion condition of connection of a tubular removable member over the body section.

[Drawing 6] It is the explanatory view showing the actuation in the case of making a tubular removable member estrange from the body section among the body section connected in drawing 5 , and a tubular removable member.

[Drawing 7] It is drawing showing the cutting situation of the tubular removable member concerned when a falling object is in the exposed part (high-pressure-hose part) of the tubular removable member of the equipment indicated to drawing 5 , and gas-evolution prevention actuation, and the explanatory view in which drawing 7 (A) shows the case where a falling object falls into the exposed part of a tubular removable member, and drawing 7 (B) are the explanatory views showing the condition that a gas evolution is prevented while a tubular removable member is cut.

### [Description of Notations]

1 Body Section

1A, 3A Gas passageway

3 Tubular Removable Member

3K Slitting slot

5 Main Valve

10 Engagement Field

11 Tubular Body

20 engagement means

20e, 20f Ball for a stop

21 Balking Inhibition Device

22 Tubular Slide Member

22A Annular lobe

22Aa(s) Annular inclined plane

22B Migration control unit

23 Spring for Former Location Return

24 Stopper Member

25 Engagement Discharge Device

30 Engaged Portion

30A Annular crevice

30B Annular heights

33 Press Tubing for Main Valves

33K Annular end slot for cutting

101 Container Bulb

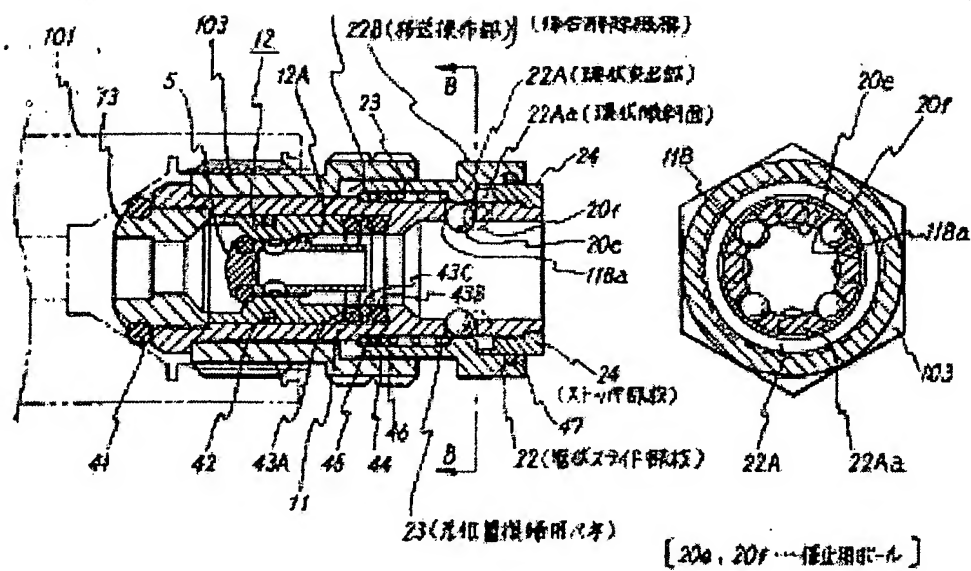
103 Tubular Connection Means

103B Guide section

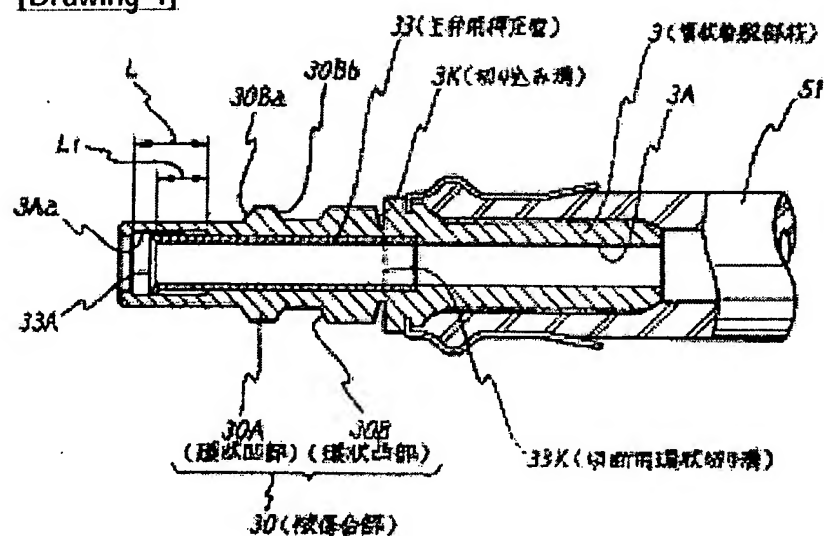
1.This document has been translated by computer. So the translation may not reflect the original precisely.  
2.\*\*\*\* shows the word which can not be translated.  
3.In the drawings, any words are not translated.

**[Drawing 1]**

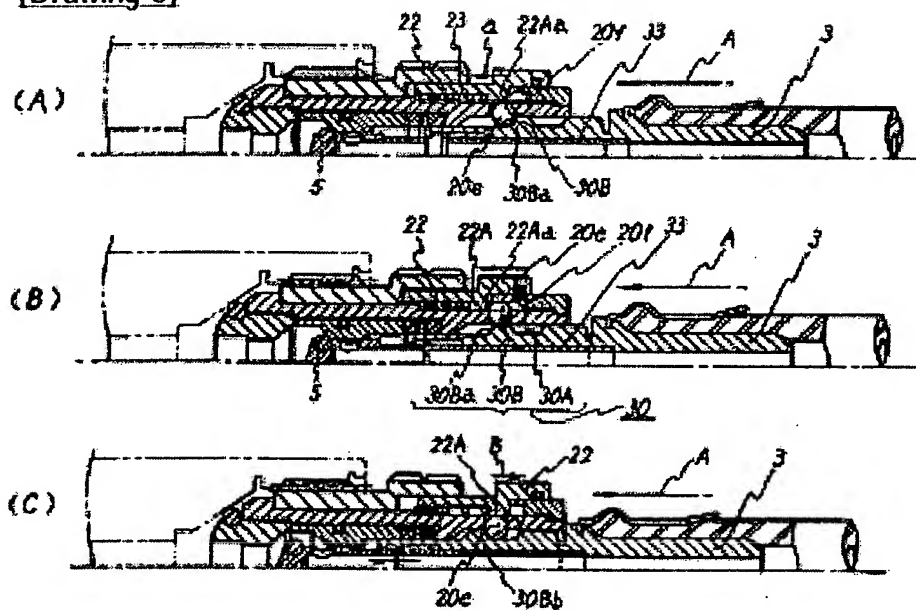




**[Drawing 4]**

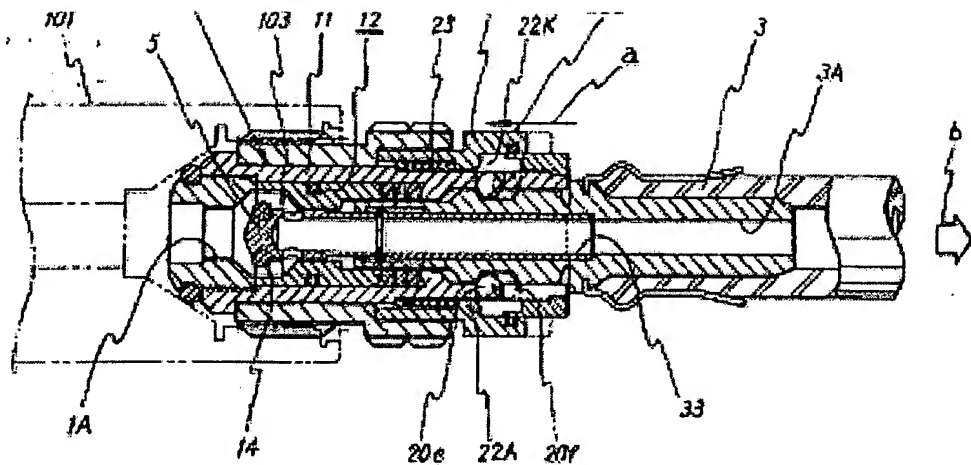


[Drawing 5].

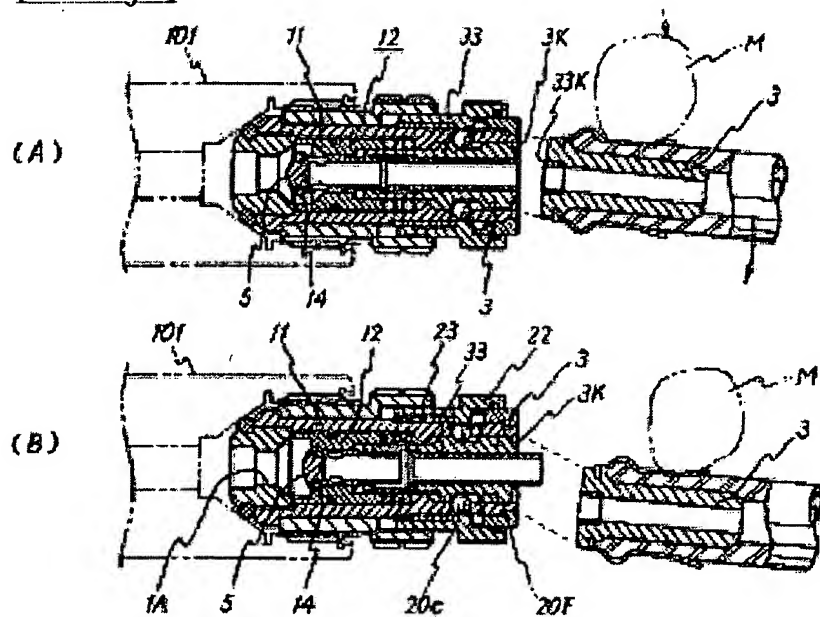


**[Drawing 6]**





[Drawing 7]



[Translation done.]